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Application Number	09/622,736
Filing Date	October 27, 2000
First Named Inventor	Mohammed Javed Absar
Art Unit	2654
Examiner Name	Qi Han
Attorney Docket No.	851663.413USPC

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Mohammed Javed Absar et al.  
Application No. : 09/622,736  
Filed : October 27, 2000  
For : FAST FREQUENCY TRANSFORMATION TECHNIQUE FOR  
TRANSFORM AUDIO CODERS

Examiner : Qi Han  
Art Unit : 2654  
Docket No. : 851663.413USPC  
Date : October 19, 2005

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
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APPELLANT'S REPLY BRIEF

Commissioner for Patents:

This reply brief is in furtherance of the Notice of Appeal, filed in this case on February 16, 2005. Applicants hereby request any fees necessary for acceptance of this Reply Brief be charged to Deposit Account No. 19-1090.

**I. ARGUMENTS IN REPLY**

***A. The Examiner Cannot Establish a Prima Facie Case of Obviousness***

The thrust of the Examiner's Answer is that the references *could* be modified to satisfy the claim limitations. The Examiner even goes so far as to provide elaborate proofs that this is possible. But the proofs illustrate why the Examiner is unable to make a *prima facie* case of obviousness. In each proof, the Examiner is forced to rely on "mathematical reasoning" for including certain intermediate steps in the proof. The Examiner cannot point to the references because the recited steps are not taught or suggested by the references.

As noted in Applicants' Brief, the Examiner initially bears the burden of establishing a *prima facie* case of obviousness. *In re Bell*, 26 U.S.P.Q.2d 1529 (Fed. Cir. 1993). In order for an examiner to establish a *prima facie* case that an invention, as defined by a claim at issue, is obvious the examiner must: (1) show some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or the combined references) must teach or suggest all the claim limitations. MPEP § 2142.

Here, the Examiner admits that all of the recited steps are not disclosed by the cited references and improperly relies on the level of skill in the art to provide the motivation to combine (and further modify) the references. Merely showing the references could be combined so as to achieve the recited limitations is not enough to establish obviousness because it is not evidence that the cited references *taught or suggested* the recited limitations. Accordingly, the Examiner has not established a *prima facie* case of obviousness and the claims are allowable.

***B. The Examiner Has Failed to Establish a Prima Facie Case That Fielder Renders Claims 1-9 and 17-23 Obvious***

The Examiner rejected claims 1-9 and 17-23 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,479,562 issued to Fielder, et al. The Examiner did not identify a second reference. Applicants respectfully traverse the Examiner's contention that Fielder renders claims 1-9 and 17-23 obvious and further submit that Fielder is not an appropriate primary reference.

**1. Claims 1-9 Not Rendered Obvious By Fielder**

The steps recited in claim 1, as amended, include:

iii) for each transform coefficient in the sequence, multiplying the real and imaginary components of the transform coefficient by respective second trigonometric function factors, adding the multiplied real and imaginary transform coefficient components to generate an addition stream coefficient, and subtracting the multiplied real and imaginary transform coefficient components to generate a subtraction stream coefficient;

- iv) multiplying the addition and subtraction stream coefficients with respective third trigonometric function factors; and
- v) subtracting the corresponding multiplied addition and subtraction stream coefficients to generate audio coded frequency domain coefficients.”

The Examiner states that “Fielder does not expressly disclose the intermediate reasoning steps ... as stated in element iii.” Examiner’s Answer at 4. The Examiner’s Answer to Applicants’ argument was to set forth equations deriving how Fielder *could* have been modified to use the recited steps. But this is not the same thing as showing Fielder in fact taught or suggested the recited steps.

The Examiner does not now deny that there are a host of alternative ways to perform the claimed intermediate steps. As noted in Applicant’s Brief, one of the references cited by the Examiner, Proakis, et al, Digital Signal Processing, principles, algorithms and applications (3d ed. 1996) (“Proakis”), discussed in more detail below, clearly indicates that there are choices among FFT algorithms. Proakis, page 475, fourth paragraph. Contrary to the Examiner’s position, this is relevant because it is evidence of what the Examiner has already admitted – namely that Fielder could have employed any number of intermediate steps.

Instead the Examiner relies on Fielder’s use of mathematical reasoning and (improperly) on the level of skill of one in the art, and argues that Fielder *could* have used the recited steps. Examiner’s Answer at 4-5 (relying on level of skill in the art to provide motivation). The Examiner even attempts to prove that Fielder *could* have used the claimed steps. Examiner’s Answer at 19-20. This, however, is not sufficient to establish a *prima facie* case of obviousness. There is still no dispute that the express steps recited are not disclosed anywhere in Fielder. Examiner’s Answer at 4. Moreover, the Examiner’s new contention that the use of trigonometry by Fielder alone is sufficient to provide the motivation to modify Fielder to use the specific steps recited is simply incorrect. The Examiner does not contend that the use of trigonometry would inherently lead to use of the specific steps recited, only that the use of trigonometry *could* have led to use of the steps recited.

Claims 6, 8 and 9 contain additional limitations, as set forth in Applicants’ Brief. The Examiner uses the same faulty reasoning applied to claim 1 (and relied upon by the Examiner in

every rejection) – namely that Fielder *could* have performed the recited steps in the recited manner, not that Fielder *actually* disclosed or suggested performing the recited steps in the recited manner – to reject claims 6, 8 and 9. Accordingly, Applicants respectfully submit that claims 6, 8 and 9 are not rendered obvious by Fielder because the respective additional limitations set forth in those claims and discussed in Appellants’ Brief are not taught or suggested by Fielder and there is no motivation in Fielder for the combination.

## 2. Claims 17-23 Are Not Rendered Obvious by Fielder

The Examiner relies on the flawed reasoning applied to claim 1. See Examiner’s Answer at 7, 18-19. The Examiner makes no attempt other than a bald assertion to identify what portion of Fielder teaches or suggests “applying first post-multiplication factors to the real and imaginary coefficient components, differencing and combining the post-multiplied real and imaginary components, applying second post-multiplication factors to the difference and combination results, and differencing” as recited in claim 17. Claims 18-23 depend from claim 17. Accordingly, Applicants submit that claims 17-23 are not rendered obvious by Fielder and that the Examiner has failed to establish a *prima facie* case of obviousness.

Thus, Applicants respectfully traverse the Examiner’s contention that Fielder renders claims 1-9 and 17-23 obvious and submit that the Examiner has failed to establish a *prima facie* case of obviousness. See MPEP § 2143.01 (The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.”); MPEP § 2112 (“The mere fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.”) (emphasis in original). The level of skill in the art cannot be relied upon to provide the suggestion to combine the references. MPEP § 2143.01 (citing *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d 1161 (Fed. Cir. 1999)).

## C. *The Examiner Has Failed to Establish a Prima Facie Case That Fielder in View of Proakis Renders Claims 10-13, 16 and 24-27 Obvious*

The Examiner contends that Proakis suggests a method applicable to a two-input or two-channel signal, and that this is the teaching to be applied to Fielder to achieve the claimed methods. The Examiner’s only argument that Fielder is an appropriate primary reference is the faulty argument that “mathematical reasoning” alone is sufficient to render specific claim steps

obvious. *See* Examiner’s Answer at 22-23 (“Examiner further reasoning (similar to single input signal) by using trigonometric identity expression”).

Although the Examiner has worded the Examiner’s Answer to suggest all of the limitations of claims 10-13, 16, and 24-27 are expressly present in the cited references, this is clearly not the case when the Examiner’s argument is examined (and is not the argument the Examiner made below). In fact, the Examiner continues to rely on and incorporate the faulty reasoning the Examiner applied to claim 1. The Examiner admits that the same reasoning employed against claim 1 was used to (improperly) establish Fielder as the primary reference against claims 10-13, 16 and 24-27. Examiner’s Answer at 23 (“It is noted that the steps for eq.d to eq.k are the same as described for single input [claim 1]”). The Examiner contends that Fielder discloses “some of the intermediate results or steps,” (Examiner’s Answer at 10), but nowhere does the Examiner contend that Fielder discloses “all” of the intermediate results or steps recited, or that such steps are inherent in Fielder. Nor does the Examiner contend that these missing intermediate results or steps are disclosed in Proakis.

The Examiner continues to focus on modifying the references using “mathematical identities to obtain an identical or equivalent result,” but ignores the fact that neither reference teaches or suggests the specific intermediate steps recited in the claims, or those illustrated in the Examiner’s “proofs”. *See* Examiner’s Answer at 21-25 (attempting to prove that Fielder and Proakis *could* have been modified and combined to achieve the claimed result, but relying on “further reasoning” (page 22), instead of citations to the references to do so).

In addition, with regard to claims 12 and 27, the Examiner relies on the same flawed premise that obviousness can be shown by establishing that a reference “may” be modified to include a recited claim limitation. As discussed in Applicants’ brief, the Examiner makes no attempt to show the specific limitations are disclosed in Fielder or Proakis. Instead, the Examiner employs the same faulty reasoning used to reject claims 1 and 6 to reject claims 12 and 27. *See* Examiner’s Answer at 12-16 and 21-23.

Accordingly, Applicants respectfully submit that claims 10-13, 16, and 25-27 are not render obvious by Fielder in view of Proakis, because Fielder is not an appropriate primary reference and Proakis does not supply the teachings missing from Fielder. Thus, the Examiner has failed to establish a *prima facie* case of obviousness.

**D. *The Examiner Has Failed to Establish a *Prima Facie* Case That Fielder in View of Proakis and Jhung Renders Claims 14-15 and 28-39 Obvious***

The Examiner rejected claims 14-15 and 28-39 under 35 U.S.C. § 103(a) as obvious over Fielder in view of Proakis and U.S. Patent No. 6,304,847 issued to Jhung. Claims 14 and 15 depend from claim 10, which, as discussed above, is not rendered obvious by the combination of Fielder and Proakis. The Examiner does not contend that Jhung teaches or suggests the claimed intermediate steps missing from Fielder and Proakis. Thus, claims 14-15 are not rendered obvious by Fielder in view of Proakis and Jhung.

Further, the Examiner makes no attempt to respond to Applicants' arguments regarding independent claim 28, other than to point to the Examiner's arguments regarding claim 1. The claimed "post-transform processor to process the sequence of transform coefficients by applying first post-multiplication factors to the real and imaginary coefficient components, differencing and combining the post-multiplied real and imaginary components, applying second post-multiplication factors to the difference and combination results, and differencing to obtain a sequence of audio coded frequency domain coefficients representing the input sequence of digital audio samples" are not taught or suggested by Fielder, alone or in combination with Proakis, and the Examiner does not contend they are taught or suggested by Jhung.

In addition, claim 37, which depends from claim 28, recites: "wherein the input sequence of digital audio samples comprises first and second sequences of digital audio samples from first and second audio channels; the pre-transform processor processing the first and second sequences of digital audio samples by combining the first and second sequences of digital audio samples into a single complex sample sequence." Again, the Examiner does not address the additional limitations of claim 37, other than to point to the Examiner's flawed arguments regarding claim 1. Claim 38 depends from claim 37. Thus, the Examiner has failed to establish a *prima facie* case of obviousness with respect to claims 37 and 38 for this additional reason.

Accordingly, Applicants respectfully submit that claims 14-15 and 28-39 are not rendered obvious by Fielder in view of Proakis and Jhung, and that the Examiner has failed to establish a *prima facie* case of obviousness.

## II. CONCLUSION

The Examiner has failed to establish a *prima facie* case that the claims are rendered obvious by Fielder, whether considered alone or in combination with Proakis and/or Jhung. The thrust of the Examiner's Answer (as well as the Examiner's rejections below) is that Fielder *could* be modified to serve as a primary reference. But the Examiner cites no reference or motivation in Fielder (or in Proakis or Jhung) for the proposed modifications to Fielder that the Examiner makes in order to cite Fielder as a primary reference. The Examiner then goes on to combine Fielder with the other references to satisfy additional claim limitations. This is not sufficient to establish obviousness. Accordingly, allowance of the claims is respectfully requested.

Respectfully submitted,

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TLB:rg

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